PRENTICE COMPUTER CENTRE

UNIVERSITY OF QUEENSLAND, ST. LUCIA, QUEENSLAND, AUSTRALIA. 4067.

NEWSLETTER

N-267 28-September-81

CONTENTS

Authorized by the Director of the Computer Centre

Principal Service Centres

		Extensions
Operations Manager		3471
Consulting - Hawken Building Batch Station	(377)	3025
Contract Programming & Feasibility Studies		3944
Equipment & Data Line Fault Reporting		3938
Accounts		2188
System Status Automatic Answering		3101
General Enquiries		3018
Program Librarian		3943
Training & Courses		3021
Griffith University:		
Consulting	(275)	7561
Computer Services		7560

1.0 CAMPUS COMMUNICATIONS NETWORK

There is much interest in the progress of the Campus Communications Network and the following provides a brief report on status.

There are five stages currently being implemented which includes the following buildings: Commerce, Connell, Duhig, Social Sciences, Central Library, Steele, Bookshop, Richards, Michie, Forgan Smith, Biological Sciences, Goddard, Parnell, Physics Annex, Hines, Microbiology, Chemistry, MacGregor, J.D. Story, Priestley, Seddon, Hartley Teakle, Otto Hirschfeld, Therapies. External duct work to allow access to these buildings is now complete and currently cable tray is being installed in the tunnel and individual access to each building is being arranged. Following this, 9 x 100 pair Telecom type cables will be installed from an MDF (Main Distribution Frame) in Hawken to new MDFs in the above buildings. Finally, internal cabling will be installed to each terminal and a "Line Driver" (Telecom modem replacement) is required at each end of the line. These Line Drivers are currently being produced in the Computer Centre.

I expect the first services will be cut over around December-January and will be in Priestley and buildings on the Great Court. The total installation in the first five stages will probably take 6 to 9 months.

The cost to the user has not been finally fixed as yet, however it is expected that there will be two basic services offered.

1. Async 300-2400 bps at about the same cost as a Telecom 300 bps is at present ($150). That is, you can increase the line speed on VDUs at no increase in cost.

2. Async/Sync 4800-9600 bps is expected to be significantly less than the current Telecom charges.

I should emphasise that this is my guess (from a technical viewpoint) of the possible charges. The final position will be determined by the University Authorities on the recommendation of the Bursar. The development was funded on the basis that current charges to Telecom would enable the investment to be recovered in a three year period.

You will no doubt find Mr Lloyd Fischle crawling around in your ceiling at some stage. Don't panic! Lloyd has been employed specifically to install the new system. Your cooperation with Lloyd would be appreciated as this is a somewhat arduous and awkward job on occasions (and remember, Lloyd will also be maintaining this network later).

The engineering precinct requires considerable external duct work which I expect Buildings and Grounds would have to arrange over the Christmas break.

Graham Rees
extension 3288

2.0 DATEL PRIVATE LINES AND MODEMS

Telecom has increased its charges for modems and lines as from 1 September, 1981. This means that we will be invoiced in January 1982 for the "make up" charges for existing installations. For a 300 bps "On Campus" modem installation the "make up" charge will be in the region of $12.00.

Charges for modems from 1 September, 1981 will be:

Speed	ST LUCIA CAMPUS		OTHER SITES	
bps	Rental	Installation	Rental	Installation
300	180	216	300	360
1200	432	240	720	400
9600	1800	432	3000	720

Line rental charges for each kilometre or part thereof up to 35 kilometres will be: 300 bps $48; 1200 bps $62; 9600 bps $160.

Dal Anderson
extension 3166

3.0 SPSS CORNER - VAX/KL10 COSTS

For users who may be contemplating processing SPSS jobs on the VAX, the following figures should prove interesting - perhaps even tempting!

Case 1 (A small job)

The data file contained 100 cases of 61 variables (11 blocks), the values taken by the variables being as follows:

58 variables had single digit values; 2 had double digit values; 1 had triple digit values.

The particular variables used were:

V2,	taking values	1 through 6
V3,	"	1 or 2
V4,	"	1 through 9
V26,	"	1 through 8
V39,	"	1 through 9
V54,	"	1 through 9

Each of the six variables above was given a value label; each value for each of these variables was given a value label.

All blanks were assigned the value 99

(using the card ASSIGN BLANKS 99 on the KL
and the card RECODE ALL (BLANK=99) on the VAX),

which was subsequently declared missing via a MISSING VALUES card.

The SPSS run requested the following:

```
(a) FREQUENCIES    GENERAL = V2,V3,V4,V26,V39,V54
(b) CROSSTABS      TABLES  = V2 by V26,V39,V54/V4 by V26,V39
(c) DISCRIMINANT   GROUPS  = V3(1,2)/VARIABLES=V2,V4,V26,V39,V54/
                   METHOD  = WILKS/
    OPTIONS        8
    STATISTICS     1,2,6
```

The results:

(i) KL10 Cost = $2.52 (using default space 3K)
(ii) VAX Cost = $0.85 (using default space 80# bytes and default labelspace 30# bytes)

i.e. VAX cost = 34% of KL10 cost (approx.)

Note: Both runs (and those discussed below) were performed during prime time.

Case 2 (A larger job)

The data consisted of 215 cases of 428 variables (164 blocks). The distribution of value-types were:

392 variables of type F1.0, 10 of type F2.0, 3 of type F3.0, 2 of type F6.0, 11 of type A1, 3 of type A2, 6 of type A3, 1 of type A4.

The run consisted of a very large number of COMPUTE operations, followed by the determination of a small set of frequency tables.

For the KL10, a /SPACE:14 switch was required with an ALLOCATE TRANSPACE=12000 card.
For the VAX (using default space) an ALLOCATE TRANSPACE=50000 card was used.

The results:

(i) KL10 Cost = $21.79
(ii) VAX Cost = $6.59

i.e. VAX cost = 30% of KL10 cost (approx.).

General Comment:

For SPSS jobs demanding very large space requirements, the proportional savings should be even more dramatic.

Barry Maher
extension 3021

4.0 YET ANOTHER PLOTTING PROGRAM

ZPLOT is an interactive program for producing graphs on the CalComp-565 (275 mm), CalComp-936 (836 mm) or the CalComp-1012 (275 mm at Griffith) plotters. The program was designed to produce graphs for a thesis or to be sumbitted to a journal as part of a publication. The position and character size of the numeration and the title are fully adjustable and, unlike of the other plotting packages available, axis numeration is oriented horizontally on both X and Y axes.

ZPLOT can be run on the KL as follows:

.RUN PLO:ZPLOT

ZPLOT is an interactive program for producing graphs on the CalComp-565 (PLT0), CalComp-936 (PLT1) and the CalComp-1012 (PLT2)

plotters.

Version: 31-Aug-81.

Jobname?: Up to 6 characters to identify the output file.

Which plotter, PLT0, PLT1 or PLT2?: PLT1 or 1
page height for PLT1 is 836.5 mm.
Page width?: Give an upper limit in mm.

Is 'OUT OF BOUNDS' to be a fatal error?: Yes if you want the job to abort if the pen crosses the page boundry.

Type 'HELP' for a list of commands.

Which command?:

The following commands are recognised by ZPLOT:

HELP	Types this message.
INFO	Types helpful information.
SET	Outputs a message to the Operator indicating the desired arrangement of a possible 3 pens on PLT1 or 4 on PLT2.
PEN	Chooses one of the pens specified by SET for plotting.
BOX	Plots an A4 sized box according to a standard partition of the plotting page.
ORIGIN	Defines a new origin. The origin is originally set to the bottom left hand corner of the plotting page.
AXIS	Draws an axis with annotation and a title, if desired.
CALENDAR	Draws an axis with calendar annotation and a title, if desired.
FETCH	Inputs data from DSK:
DATA	Inputs data from TTY:
DEVS	Plots a symbol plus a vertical bar.
POINTS	Plots symbols at points specified by a previous call to DATA or FETCH.
NUMBER	Numbers the points sequentially.
LINE	Plots a line through a series of points specified by a previous call to DATA or FETCH.
FUNCTION	Plots a linear, power, log, in or exp function.
SHADE	Shades the intervening space between the two previously drawn lines or series of points.
TEXT	Plots a string of text.
XSCALE	Over-rides the implicit scaling transforms specified by previous calls to AXIS.
YSCALE	Over-rides the implicit scaling transforms specified by previous calls to AXIS.
WHERE	Gives pen and origin locations and the scaling transforms currently in force.
PAGE	Sets up a new plotting page and closes the plot file for the previous page.
EXIT	Causes a clean exit from ZPLOT.

Any of these commands may be abbreviated to two or more characters.

Further information can be obtained by printing DOC:ZPLOT.DOC.

Arthur Georges
(Zoology Department)
extension 2475

5.0 INFORMATION CONCERNING COURSES

(a) 1981 Courses

The following schedule outlines the courses to be offered during the remainder of 1981:

October Courses

1. VAX (G.U.) (inc. languages)	: September 7 1 full day 9.15-12.00am + 2-5pm
2. VAX (G.U.) (inc. SPSS)	: September 8 1 full day 9.15-12.00am + 2-5pm

Note: Details for the above two courses have been circulated internally at Griffith University.

3. Elementary BASIC Programming	: October 19 - October 21 3 full days 9-12.00am + 2-5pm each day

November Courses

1. Introduction to PDP-10	: November 2 - November 3 2 full days 9-12.00am + 2-5pm each day
2. Introduction to PDP-10	: November 5 - November 6 2 full days 9-12.00am + 2-5pm each day
3. RUNOFF	: November 9 - November 11 3 full days 9-12.00am + 2-5pm each day
4. SPSS	: November 16 - November 20 5 half days 9 - 12.00 am each day
5. VAX Conversion Course (for current KL10 users only)	: November 17 - November 18 2 half days 2-5pm each day

6. Elementary FORTRAN Programming : November 30 - December 4
5 full days 9-12.00am + 2-5pm each day

(b) 1982 Courses

A schedule of courses for the beginning of 1982 will be announced in the October Newsletter.

(c) General Notes

1. Uses not already with the PDP-10 system must attend the course "Introduction to PDP-10" before enrolling in other courses.

2. All courses (except those designated as G.U.) are held in the Client Room, Hawken Building, St. Lucia.

3. No charge is made for staff and post-graduate students attending these courses. All other users are required to pay a fee of $10.00 per half-day session.

4. The Centre reserves the right to cancel courses where insufficient enrolments are received.

5. The current schedule of courses may be obtained by issuing the command .TYPE HLP:COURSE.HLP.

6. Enrolments for all courses may be made by contacting

Barry Maher
extension 3021

6.0 LIBRARY NEWS

The SOLAR package is a series of programs and subprograms capable of calculating a variety of sun-related quantities.

The package was developed by the CSIRO Division of Land Use Research for the CYBER 76 system and has been adapted to run on the PDP10-KL system.

There are two programs available with SOLAR:

1. Program CLOUDY

   The program estimates mean monthly values of both clearday and average solar radiation for both horizontal and inclined surfaces. It takes into account water vapour content and dust effects in the atmosphere on a monthly basis and can account for horizon elevation effects. It further calculates appropriate radiation indices monthly and annually.

   To run CLOUDY, the following is required:
   . RUN NEW:CLOUDY

2. Program DAYTAB

   DAYTAB prepares a table of sunrise, sunset and daylength for every day of the year.

   To run DAYTAB, the following is required:
   . RUN NEW:DAYTAB

The following subroutines are also available:

To load any subprograms into a program, the following is required:

. LOAD program name,NEW:SOLAR/SEA

SUBROUTINE	DESCRIPTION
PLAORM	Calculate the normal vectors to the sloping plane.
SETUP	Read off Horizon characteristics.
SUND	Calculates Solar Altitude, Azimuth, together with various measures of intensity.
SUNTOT	Calculates various components of total radiation above and below the atmosphere.
SUNERP	Returns value of total radiation for particular type for particular time.
TIMER	Converts time in mins since midnight to HHMM.
SOLAR	Calculates solar position beam attenuation and scattering.
COORD	Converts Latitude and Longtitude in degrees and minutes, Hour Zone into radians and calculates the SIN

and COS of the radian values.

UT	Convert Time in local civil form to minutes since 01.40 on 4th January, 1950.
NEWSUN	Update the sun-earth vector.
ZVETOR	Calculate current value of zenith vector at nominated location.
NOLOC	NOLOC is called either by function UT or subroutine ZVETOR. It is called if either of these are entered without having passed through COORD first.
DOT	Calculate the dot product of two vectors.
UNIVEC	Find the unit vector of the input vector of 3 elements.
CROSS	Calculate the cross-product of two vectors.
SOLPOS	Computes the Zenith vector and returns the solar altitude and azimuth.
ALTTUD	Calculates altitude of horizon at a given azimuth.
SOLTIM	Calculates Daylength and related variables.
TU	Perform the inverse of UT - split up a UT time into month, day, year etc.

Documentation is available on DOC:SOLAR.DOC.

Any enquiries contact

Leonie Roberts or Ann Mowles
extension 3943 Griffith University
extension 7489

6.1 IMSL

The IMSL Library is a set of computational subroutines designed to be used in the development of scientific and engineering application programs. A maintenance release (8.1) has been received consisting of minor changes to some routines. The new version is on NEW: and can be accessed by:-

```
.LOAD myprogram, NEW:IMSL/SEA
```

This version will replace the version on STA: on 30 October.

The subroutines affected are:

SUBROUTINE	DESCRIPTION OF CHANGE
BESRB	Corrected computation for 'STAT(9)'
DCSEVU	Eliminated dummy dimensioning with a variable tht could be zero
EQRH3F	Corrected condition which caused underflow
GGAMR	Modified code so as to ensure correct branch is taken for all values of 'A' and reinitialized local variables for use in subsequent calls to routine
GGBTR	Modified code so as to ensure correct branch is taken for all values of 'P' and 'Q'
GGCAY	Modified source code to improve efficiency and protect against division by zero.
GGNSM	Modified code to increase precision in accumulation of 'RVEC'
GGUW	Zeroed out 'WK' vector in a data statement in order to assure its integrity from call to call
LGING	Corrected to handle rows of all zeros
LLSQF	Made element switching mandatory for KBASIS=1
MDFD	Argument checking procedure changed to guard against user input errors
MDNRIS	Revised routine to accommodate arguments less than machine EPS
MDTD	Corrected code for nonintegral DF
MDTPS	Code modified to avoid underflow and to improve efficiency
MERFCI	Revised routine to accommodate arguments less than machine EPS
NHEXT	Modified code for computation of 'P(1)' and 'P(2)'
OFCOMM	Revised convergence technique to ensure convergence in a finite number of iterations
RLEAP	Modified code to prevent division by zero when the problem is too ill-conditioned
RLEAP	Extended the difinition of 'IJOB(2)' to allow for early termination and modified code accordingly
RLFOTH	Modified code to avoid division by zero when perfect fit is obtained and added warning error when perfect fit is obtained with a model of lower degree than expected when 'RSQ' = 100
RLFOTW	Modified code to avoid division by zero when perfect fit is obtained and added warning error when perfect fit is obtained with a model of lower degree than expected when 'RSQ' = 100

RLFOTW	Corrected code so that constant response variable will not result in a terminal error
RLMUL	Code modified so that coefficient of variation ('ANOVA(13)') is not computed if the mean response is zero
RLONE	Code changed to avoid division by zero when dependent variable is constant. Changed documentation of 'ier' = 129
RSMITZ	Modified code and added terminal error condition to avoid possible overflow
RSMSSE	Changed code to avoid overflow
USBOX	Changed to handle constant input correctly
USBOX1	Replaced 'DASH' with 'PLUS' for two adjacent hinges
USPLT	Corrected plot width when 'IOPT'=0
USSLF	Eliminated possible resetting of variable 'IUNIT'
ZXMIN	Corrected handling of case where 'N' is one and 'IOPT' is zero, and improved accuracy of initial hessian when 'IOPT' = 2 or 3
ZX4LR	Corrected inadequate handling of artivicial vector

Leonie Roberts
extension 3943

7.0 TELEPHONE NUMBER CHANGES

The User Services group is moving yet again. During the alterations to its present accommodation its members will return to the basement of the Hawken Building.

Temporary extensions will be:

Tony Bird	extension 3023
Allan Woodland	3941
Noela Meier	3941
Barry Maher	3018 or 3022
Bryan Claire	2926
Mark Robbie	2926
Brett Peterson	2926
Amelia Shanahan	3020

8.0 SYSTEM PERFORMANCE - AUGUST

The KL10 proved troublesome during August due to a low occurence intermittent fault in one of the MH10 (256Kw) memories. We have taken measures to reduce system crashes due to this fault, but the search continues.

Graham Rees
extension 3288

* * * * * * * * * * *

S Y S T E M P E R F O R M A N C E R E P O R T

For node KA10 there were 30 working days in the period 1/Aug/81 to 31/Aug/81

		< KA10 HHH:MM	> KA10 %
1.	Attended system running time	420:41	
2.	Plus unattended system running time	253:54	
3.	Equals total system running time	674:35	100.0
	less time used for:		
4.	Scheduled maintenance	19:27	2.9
5.	Dedicated operations tasks	2:15	0.3
6.	Dedicated systems development	0:00	0.0
7.	Equals time scheduled for use	652:53	96.8
	less lost time due to:		
8.	Unscheduled maintenance	0:30	0.1
9.	Hardware faults	0:17	0.0
10.	Software faults	0:49	0.1
11.	Unresolved	0:34	0.1
12.	Environmental conditions	0:41	0.1
13.	Equals time available to users	650:02	96.4
14.	Effective user uptime (13./7.)		99.6
15.	Number of crashes		6
16.	Mean availability between crashes		108:20
17.	Mean time to recover crashes (minutes)		17
18.	Total number of Jobs		6052

S Y S T E M P E R F O R M A N C E R E P O R T

For node KL10 there were 25 working days in the period 1/Aug/81 to 31/Aug/81

		< KL10 >		< DN87A >		< DN87B >	
		HHH:MM	%	HHH:MM	%	HHH:MM	%
1.	Attended system running time	432:38		432:38		432:38	
2.	Plus unattended system running time	137:24		137:24		137:24	
3.	Equals total system running time	570:02	100.0	570:02	100.0	570:02	100.0
	less time used for:						
4.	Scheduled maintenance	20:12	3.5	20:12	3.5	20:12	3.5
5.	Dedicated operations tasks	8:52	1.6	8:52	1.6	8:52	1.6
6.	Dedicated systems development	0:00	0.0	0:00	0.0	0:00	0.0
7.	Equals time scheduled for use	540:58	94.9	540:58	94.9	540:58	94.9
	less lost time due to:						
8.	Unscheduled maintenance	20:10	3.5	0:00	0.0	0:00	0.0
9.	Hardware faults	2:15	0.4	0:37	0.1	2:47	0.5
10.	Software faults	0:14	0.0	0:00	0.0	0:00	0.0
11.	Unresolved	0:06	0.0	0:47	0.1	0:00	0.0
12.	Environmental conditions	0:32	0.1	0:32	0.1	0:32	0.1
13.	Equals time available to users	517:41	90.8	539:02	94.6	537:39	94.3
14.	Effective user uptime (13./7.)		95.7		99.6		99.4
15.	Number of crashes		8		23		6
16.	Mean availability between crashes		64:43		23:26		89:37
17.	Mean time to recover crashes (minutes)		19		4		28
18.	Total number of Jobs		13355				

S Y S T E M P E R F O R M A N C E R E P O R T

For node GRIFFITH there were 25 working days in the period 1/Aug/81 to 31/Aug/81

		< GRIFFITH >	
		HHH:MM	%
1.	Attended system running time	149:41	
2.	Plus unattended system running time	371:35	
3.	Equals total system running time	521:16	100.0
	less time used for:		
4.	Scheduled maintenance	0:00	0.0
5.	Dedicated operations tasks	0:00	0.0
6.	Dedicated systems development	0:00	0.0
7.	Equals time scheduled for use	521:16	100.0
	less lost time due to:		
8.	Unscheduled maintenance	0:00	0.0
9.	Hardware faults	0:08	0.0
10.	Software faults	0:07	0.0
11.	Unresolved	2:08	0.4
12.	Environmental conditions	0:00	0.0
13.	Equals time available to users	518:53	99.5
14.	Effective user uptime (13./7.)		99.5
15.	Number of crashes		18
16.	Mean availability between crashes		28:50
17.	Mean time to recover crashes (minutes)		8

S Y S T E M P E R F O R M A N C E R E P O R T

For node COMMERCE there were 20 working days in the period 1/Aug/81 to 31/Aug/81

		< COMMERCE >	
		HHH:MM	%
1.	Attended system running time	151:20	
2.	Plus unattended system running time	0:00	
3.	Equals total system running time	151:20	100.0
	less time used for:		
4.	Scheduled maintenance	0:00	0.0
5.	Dedicated operations tasks	0:00	0.0
6.	Dedicated systems development	0:00	0.0
7.	Equals time scheduled for use	151:20	100.0
	less lost time due to:		
8.	Unscheduled maintenance	0:00	0.0
9.	Hardware faults	0:10	0.1
10.	Software faults	0:00	0.0
11.	Unresolved	0:00	0.0
12.	Environmental conditions	0:00	0.0
13.	Equals time available to users	151:10	99.9
14.	Effective user uptime (13./7.)		99.9
15.	Number of crashes		2
16.	Mean availability between crashes		75:35
17.	Mean time to recover crashes (minutes)		5